

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Previously Presented) A polymer electrolyte fuel cell comprising:

a housing provided with an anode-side supply inlet for supplying a material for fuel;

an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane;

a layer containing a biochemical catalyst which decomposes the material for fuel to generate hydrogen, the layer being formed within the housing between the anode-side supply inlet and the anode;

wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase.

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Previously Presented) A polymer electrolyte fuel cell comprising:
a housing provided with an anode-side supply inlet for supplying a material for
fuel;
an anode and a cathode to sandwich a polymer electrolyte membrane; and
a layer containing a biochemical catalyst which decomposes the material for fuel
to generate fuel, the layer being formed between the anode-side supply inlet and the
anode;
wherein the biochemical catalyst comprises a combination of Clostridium
butyricum and formate-hydrogen lyase.

10. (Previously Presented) A fuel cell according to claim 9 further comprising an
anode-side collector and a cathode-side collector which sandwich the anode and the
cathode therebetween, wherein the anode-side collector also serves as the layer
containing the biochemical catalyst.

11. (Cancelled)

12. (Previously Presented) A polymer electrolyte fuel cell comprising:
a housing provided with an anode-side supply inlet for supplying a material for
fuel, the anode-side supply inlet being connected to a supply section for supplying the
material for fuel;
an anode and a cathode accommodated in the housing to sandwich a polymer
electrolyte membrane; and
a filter containing a layer containing a biochemical catalyst which decomposes the
material for fuel to generate fuel, the filter being formed in the supply section, wherein
the biochemical catalyst comprises a combination of Clostridium butyricum and formate-
hydrogen lyase.

13. (Previously Presented) A fuel cell according to claim 12 further comprising an anode-side collector and a cathode-side collector which sandwich the anode and the cathode therebetween, wherein the anode-side collector also serves as the layer containing the biochemical catalyst.

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Previously Presented) A polymer electrolyte fuel cell comprising:
a housing provided with an anode-side supply inlet for supplying a material for fuel;

an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane;

a layer containing a biochemical catalyst which decomposes the material for fuel comprising one or more material(s) selected from methanol, formaldehyde and formic acid, the layer being formed between the anode-side supply inlet and the anode;

wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase.

26. (Cancelled)

27. (Cancelled)

28. (Previously Presented) A polymer electrolyte fuel cell comprising:
a housing provided with an anode-side supply inlet for supplying a material for
fuel;

an anode and a cathode accommodated in the housing to sandwich a polymer
electrolyte membrane; and

a layer containing a biochemical catalyst which decomposes the material for fuel
to generate fuel, the layer being formed between the anode-side supply inlet and the
anode,

wherein the biochemical catalyst comprises a combination of Clostridium
butyricum and formate-hydrogen lyase, and the material for fuel is selected from oxygen-
containing hydrocarbons such as alcohols, polysaccharides, aldehydes, ketones, and
carboxylic acids.

29. (Cancelled)

30. (Previously Presented) A polymer electrolyte fuel cell comprising:

 a housing provided with an anode-side supply inlet for supplying a material for fuel, the anode-side supply inlet being connected to a supply section for supplying the material for fuel;

 an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane; and

 a filter containing a layer containing a biochemical catalyst which decomposes the material for fuel to generate fuel, the filter being formed in the supply section;

 wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase, and the material for fuel is selected from oxygen-containing hydrocarbons such as alcohols, polysaccharides, aldehydes, ketones, and carboxylic acids.

31. (Cancelled)

32. (Previously Presented) A polymer electrolyte fuel cell comprising:

 a housing provided with an anode-side supply inlet for supplying a material for fuel;

 an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane; and

 a layer containing a biochemical catalyst which decomposes the material for fuel to generate fuel, the layer being formed between the anode-side supply inlet and the anode;

 wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase, and the material for fuel is in the form of an aqueous solution.

33. (Cancelled)

34. (Previously Presented) A polymer electrolyte fuel cell comprising:
a housing provided with an anode-side supply inlet for supplying a material for fuel, the anode-side supply inlet being connected to a supply section for supplying the material for fuel;
an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane; and
a filter containing a layer containing a biochemical catalyst which decomposes the material for fuel to generate fuel, the filter being formed in the supply section;
wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase, and the material for fuel is in the form of an aqueous solution.

35. (Previously Presented) A polymer electrolyte fuel cell comprising:
a housing provided with an anode-side supply inlet for supplying a material for fuel, the anode-side supply inlet being connected to a supply section for supplying the material for fuel;
an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane;
a filter containing a layer containing a biochemical catalyst which decomposes the material for fuel comprising one or more material(s) selected from methanol, formaldehyde, and formic acid, the filter being formed in the supply section;
wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase

36. (New) A polymer electrolyte fuel cell comprising:

 a housing provided with an anode-side supply inlet for supplying a material for fuel;

 a layered structure situated within the housing, the layered structure comprising the following layers:

 an anode;

 a cathode;

 a polymer electrolyte membrane;

 an anode-side collector containing a biochemical catalyst which decomposes the material for fuel to generate hydrogen, an anode side surface of the anode-side collector having conductivity;

 a cathode-side collector;

 wherein the anode and the cathode are accommodated in the housing to sandwich the polymer electrolyte membrane;

 wherein the anode-side collector is formed within the housing between the anode-side supply inlet and the anode;

 wherein the anode-side collector and the cathode-side collector sandwich the anode and the cathode therebetween; and

 wherein spaces are provided between the anode-side supply inlet and the anode-side collector and between the anode-side collector and the anode.

37. (New) The polymer electrolyte fuel cell of claim 36, wherein the anode-side collector and the anode are situated in parallel, spaced-apart relationship.

38. (New) A polymer electrolyte fuel cell comprising:

 a housing provided with an anode-side supply inlet for supplying a material for fuel;

 a layered structure situated within the housing, the layered structure comprising the following layers:

 an anode;

 a cathode;

 a polymer electrolyte membrane;

 an anode-side collector which serves as a layer containing a biochemical catalyst which decomposes the material for fuel to generate hydrogen, the biochemical catalyst comprising one or more selected from hydrogen-generative anaerobic bacteria, hydrogen-generative yeasts, and hydrogen-generative enzymes, an anode side surface of the anode-side collector having conductivity;

 a cathode-side collector;

 wherein the anode and the cathode are accommodated in the housing to sandwich the polymer electrolyte membrane;

 wherein the anode-side collector is formed within the housing between the anode-side supply inlet and the anode;

 wherein the anode-side collector and the cathode-side collector sandwich the anode and the cathode therebetween; and

 wherein spaces are provided between the anode-side supply inlet and the anode-side collector and between the anode-side collector and the anode.

39. (New) The polymer electrolyte fuel cell of claim 38, wherein the anode-side collector and the anode are situated in parallel, spaced-apart relationship.

40. (New) A polymer electrolyte fuel cell comprising:

 a housing provided with an anode-side supply inlet for supplying a material for fuel;

 a layered structure situated within the housing, the layered structure comprising the following layers:

 an anode;

 a cathode;

 a polymer electrolyte membrane;

 an anode-side collector;

 a cathode-side collector;

 wherein the anode and the cathode are accommodated in the housing to sandwich the polymer electrolyte membrane;

 wherein the anode-side collector is formed within the housing between the anode-side supply inlet and the anode;

 wherein the anode-side collector and the cathode-side collector sandwich the anode and the cathode therebetween; and

 wherein spaces are provided between the anode-side supply inlet and the anode-side collector and between the anode-side collector and the anode;

 a supply section connected to the anode-side supply inlet for supplying the material for fuel, the supply section comprising a filter, the filter containing a biochemical catalyst which decomposes the material for fuel to generate hydrogen, wherein the biochemical catalyst comprises one or more selected from hydrogen-generative bacteria, hydrogen-generative yeasts, and hydrogen-generative enzymes.

41. (New) The polymer electrolyte fuel cell of claim 40, wherein the anode-side collector and the anode are situated in parallel, spaced-apart relationship.

42. (New) A polymer electrolyte fuel cell comprising:

 a housing provided with an anode-side supply inlet for supplying a material for fuel;

 a layered structure situated within the housing, the layered structure comprising the following layers:

 an anode;

 a cathode;

 a polymer electrolyte membrane;

 an anode-side collector which serves as a layer for containing a biochemical catalyst, the biochemical catalyst comprising one or more material(s) selected from methanol, formaldehyde and formic acid which decompose the material for fuel to generate hydrogen, an anode side surface of the anode-side collector having conductivity;

 a cathode-side collector;

 wherein the anode and the cathode are accommodated in the housing to sandwich the polymer electrolyte membrane;

 wherein the anode-side collector is formed within the housing between the anode-side supply inlet and the anode;

 wherein the anode-side collector and the cathode-side collector sandwich the anode and the cathode therebetween; and

 wherein spaces are provided between the anode-side supply inlet and the anode-side collector and between the anode-side collector and the anode.

43. (New) The polymer electrolyte fuel cell of claim 42, wherein the anode-side collector and the anode are situated in parallel, spaced-apart relationship.